

*Amendment*U.S. Serial No. 09/857,766

Page 5

REMARKS

Reconsideration and allowance of the present application based on the following remarks are respectfully requested.

Claim 1 has been amended to incorporate the preference expressed in old Claim 4. Support for this amendment may be found in originally filed Claims 1 and 4, and at page 3, lines 22-27 of the application, as filed.

Claims 4 and 15 have been cancelled without prejudice.

Claim 10 has been amended to incorporate the preference expressed in Claim 15. Support for this amendment may be found in originally filed Claims 10 and 15, and at page 7, lines 4-5 and page 3, lines 22-27 of the application as filed.

The dependencies of Claims 5-9, 14 and 16-20 have been amended to overcome the Examiner's rejections under 37 C.F.R. 1.75(c).

With regard to the rejections raised under 35 U.S.C. 112, Claims 3 and 10-13 have been amended to overcome the Examiner's rejections as follows.

In Claim 3, the word "orthohydroxyaryloxime" has been replaced by "orthohydroxyarylaloxime" and the words "selected from a class of compounds" have been replaced by "a compound."

In Claim 10, the underlining of the words "either" and "or" has been removed; the words "the organic solution" have been replaced by the words "the solvent extraction composition"; and the words "characterised in that" have been replaced by the word "wherein."

In Claim 11, a period has been inserted at the end of the claim.

In Claims 5, 6, 13, 16 and 17, the narrower range limitations that were expressed have been deleted and made the subject of new Claims 21-25.

With regard to the Examiner's rejection of Claims 1-3 and 10-13 under 35 U.S.C. 102(b), Applicant submits that the rejection is in error. However, in order to materially advance prosecution, Applicant has amended the claims to further define the structure of the esters substituted with a hydroxy group. Applicant reserves the right to separately prosecute the original claims and any other subject matter disclosed in the application.

The rejections of claims 1-3 and 10-13 are made under 35 USC 102(b) or 35 USC 103(a) and rely on Kordosky '552 or WO 98/28454 or EP 202833.

*Amendment*U.S. Serial No. 09/857,766

Page 6

It is noted that the amended claims, which include the subject matter of claim 4 are not subject to the instant rejections. However, if examined, it is respectfully submitted that the previously improper multiple dependent claims would not have been rejected over any of the cited references.

Kordosky discloses processes for the recovery of nickel from ammonia solution using a solvent extraction composition comprising hydroxyaryl oximes and an equilibrium modifier. The equilibrium modifiers disclosed in Kordosky are aliphatic alcohols, alkyl phenols, 2,2,4-trimethyl-1,3-pentane diol di-isobutyrate and tri-2-ethylhexyl phosphate. There is no disclosure in Kordosky of any esters which have a moiety substituted with a hydroxy group. Therefore, the claims as amended are not anticipated by the disclosure of Kordosky.

WO '454 concerns processes for the recovery of metals from ammonia solution using a solvent extraction composition comprising oximes and an ammonia antagonist. Ammonia antagonists are those compounds which are "non-hydrogen bond donating" or are only "hydrogen bond accepting". WO '454 makes reference to compounds containing one or more groups selected from ester, ketone, sulfoxide, sulfone, ether, amine oxide, tertiary amide, phosphate, carbonate, carbamate, urea, phosphine oxide and nitrile being potential ammonia antagonists, with specific disclosures of certain diesters, esters and nitriles, particularly the diester 2,2,4-trimethyl-1,3-pentanediol diisobutyrate. However, there is no disclosure in WO '454 of any esters of formula (2) which have a moiety substituted with a hydroxy group. Therefore, the claims as amended are not anticipated by the disclosure of WO '454.

EP '833 concerns compositions for extraction of metals from aqueous solutions. The compositions comprise a strong 2-hydroxy-5-alkylbenzaldoxime extractant and highly-branched esters or alcohols as modifiers. There is only mentioned the possibility of hydroxy substitution among other possible substituents, together with unsubstituted compounds. The examples in EP '833 are confined to comparisons of certain branched alcohols and certain branched esters, particularly the diester 2,2,4-trimethyl-1,3-pentanediol diisobutyrate, which is mentioned in the claims of EP '833. Accordingly, EP '833 does not anticipate the presently claimed invention because of the absence in the reference exemplifying an ester of Formula (2) which includes a moiety substituted with at least one hydroxy group.

For the above reasons, the claims as amended are not anticipated by the disclosures of Kordosky, WO '454 or EP '833. The claims as amended are novel over the prior art.

*Amendment*U.S. Serial No. 09/857,766

Page 7

With regard to the rejection of Claims 1-3 and 10-13 under 35 U.S.C. 103(a), Applicant respectfully disagrees.

Kordosky teaches processes for the recovery of nickel from ammonia solution using a solvent extraction composition comprising hydroxyaryl oximes and an equilibrium modifier. Kordosky teaches that equilibrium modifiers are selected from the group consisting of aliphatic alcohols, alkyl phenols, 2,2,4-trimethyl-1,3-pentane diol di-isobutyrate and tri-2-ethylhexyl phosphate. The teaching in Kordosky focuses mainly on the use of 2,2,4-trimethyl-1,3-pentane diol di-isobutyrate, a diester. There is no teaching in Kordosky regarding the use of anything other than modifiers from within this group of compounds. There is certainly no teaching of compositions or of processes based on the use of compositions which require the express presence of the esters substituted with a hydroxy group of Formula (2). Thus, without the teaching of the present application, one skilled in the art would have no motivation to seek to employ the esters substituted with a hydroxy group of Formula (2) in compositions comprising oximes for use in the recovery of metals. Accordingly, the claims of the present invention would not have been obvious to the person of ordinary skill in the art.

WO '454 discloses processes for the recovery of metals from ammonia solution using a solvent extraction composition comprising oximes and an ammonia antagonist. According to WO '454 the ammonia antagonists are compounds which are "non-hydrogen bond donating" or are only "hydrogen bond accepting." Compounds which may serve as ammonia antagonists are taught to contain one or more groups selected from ester, ketone, sulfoxide, sulfone, ether, amine oxide, tertiary amide, phosphate, carbonate, carbamate, urea, phosphine oxide and nitrile. However, specific teaching in WO '454 is directed only at certain diesters, esters and nitriles with the focus of this teaching on a diester, 2,2,4-trimethyl-1,3-pentanediol diisobutyrate, known as TXIB. There is no teaching in WO '454 concerning the use of any esters of Formula (2) which have a moiety being substituted with at least one hydroxy group. Thus, without the teaching of the present application, one skilled in the art would have no motivation to seek to employ the esters substituted with a hydroxy group of Formula (2) in compositions comprising oximes for use in the recovery of metals. Accordingly, the claims of the present invention would not have been obvious to a person of ordinary skill in the art.

EP '833 discloses highly-branched esters as modifiers and their use in extraction compositions. EP '833 is directed to the use of certain branched alcohols and certain branched esters. This teaching is primarily confined to comparisons of certain branched

*Amendment*U.S. Serial No. 09/857,766

Page 8

alcohols and certain branched esters, with particular focus on the diester 2,2,4-trimethyl-1,3-pentanediol diisobutyrate. There is mentioned only in passing of the possibility of hydroxy substitution among other possible substituents, together with unsubstituted compounds. There is no exemplification, within the broad disclosure in EP '833 of esters which are substituted with hydroxy groups. Thus, without the teaching of the present application, one skilled in the art would have no motivation to seek to employ the esters substituted with a hydroxy group of Formula (2) in compositions comprising oximes for use in the recovery of metals.

It would therefore be wholly surprising to the practitioner that, as shown in the example of the present application, esters substituted with a hydroxy group of Formula (2) show improved results over the diester, 2,2,4-trimethyl-1,3-pentanediol diisobutyrate. The advantage shown by the modifiers of the present invention would not have been obvious to the skilled person based on the teaching of EP '833. Therefore the claims of the present invention are inventive over the cited art.

In conclusion, the compositions and processes of the present invention are novel and inventive. The Applicant believes the application is in order for allowance.

In view of the foregoing, the claims are now believed to be in form for allowance, and such action is hereby solicited. If any point remains in issue which the Examiner feels may be best resolved through a personal or telephone interview, please contact the undersigned at the telephone number listed below.

Attached is a marked-up version of the changes made to the specification and claims by the current amendment. The attached Appendix is captioned **"Version with markings to show changes made"**.

Amendment

U.S. Serial No. 09/857,766

Page 9

All objections and rejections having been addressed, it is respectfully submitted that the present application is in a condition for allowance and a Notice to that effect is earnestly solicited.

Respectfully submitted,

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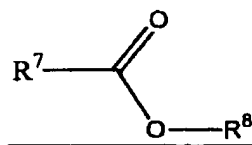
Attachment: Appendix

*Amendment*U.S. Serial No. 09/857,766

Page 10

APPENDIX: VERSION WITH MARKINGS TO SHOW CHANGES MADE**IN THE CLAIMS:**

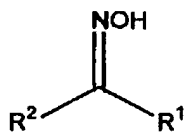
1. (Amended) A solvent extraction composition comprising one or more orthohydroxy-arylalldoximes or orthohydroxyarylketoximes and one or more esters substituted with a hydroxy group, wherein the esters substituted with a hydroxy group are compounds of formula (2):

Formula (2)

wherein one of R⁷ or R⁸ is a substituted hydrocarbyl group with at least one hydroxyl group and the other is an optionally substituted hydrocarbyl group.

2. A composition according to claim 1, additionally comprising a water immiscible organic solvent.

3. (Amended) A composition according to claim 1 [either preceding claim], wherein the [orthohydroxyaryloxime] orthohydroxyarylalldoxime or orthohydroxyarylketoxime is [selected from the class of compounds] a compound represented by the Formula (1),

Formula (1)

wherein,

R¹ is hydrogen or an optionally substituted hydrocarbyl group

R² is an optionally substituted ortho-hydroxyaryl group,

and salts thereof.

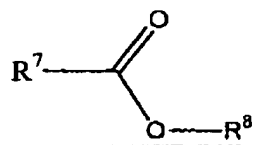
*Amendment*U.S. Serial No. 09/857,766

Page 11

5. (Amended) A composition according to claim 1 [any one of claims 1 to 4], wherein the orthohydroxyarylketoime is a 5-(C₉ to C₁₄ alkyl)-2-hydroxyacetophenone oxime[, preferably 5-nonyl-2-hydroxy-acetophenone oxime].
6. (Amended) A composition according to claim 1 [any one of claims 1 to 5], wherein the orthohydroxyarylaldoime is a 5-(C₉ to C₁₄ alkyl)-2-hydroxybenzaldoime[, preferably 5-nonyl-2-hydroxy-benzaldoime].
7. (Amended) A composition according to any one of claims 1, 2, 3, 5, 6, 21 or 22 [1 to 6], wherein the ester substituted with a hydroxy group comprises a highly-branched hydroxy-ester comprising from 9 to 25 carbon atoms.
8. (Amended) A composition according to any one of claims 1, 2, 3, 5, 6, 21 or 22 [1 to 7], wherein the hydroxy functionality of the ester substituted with a hydroxy group resides on R⁸, and where R⁸ is branched aliphatic group.
9. (Amended) A composition according to any [preceding claim] one of claims 1, 2, 3, 5, 6, 21 or 22, wherein the ester substituted with a hydroxy group is 2,2,4-trimethyl-1,3-pentanediol mono-isobutyrate or 2,2,4-trimethyl-1,3-pentanediol monobenzoate.
10. (Amended) A process for the extraction of a metal from solution in which either [either] an acidic solution containing a dissolved metal or [or] an aqueous ammoniacal solution containing a dissolved metal is contacted with a solvent extraction composition comprising a water immiscible organic solvent and a water-immiscible solvent extractant, whereby at least a fraction of the metal is extracted into the [organic solution, characterised in that] solvent extraction composition, wherein the solvent extraction composition comprises one or more orthohydroxyarylaldoximes or orthohydroxyarylketoimes and one or more esters substituted with a hydroxy group, wherein the esters substituted with a hydroxy group are compounds of

*Amendment*U.S. Serial No. 09/857,766

Page 12

formula (2):Formula (2)

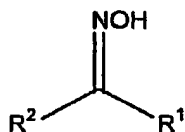
wherein one of R⁷ or R⁸ is a substituted hydrocarbyl group with at least one hydroxyl group and the other is an optionally substituted hydrocarbyl group.

11. A process according to claim 10 wherein there is a predominance of orthohydroxyaryldoximes in relation to any orthohydroxyarylketoimes present in the solvent extraction composition.

12. A process according to claim 10 wherein there is a predominance of orthohydroxyarylketoimes in relation to any orthohydroxyaryldoximes present in the solvent extraction composition.

13. (Amended) A process according to claim 10 [any one of claims 10 to 12], wherein the metal is copper, zinc, cobalt or nickel[, and is preferably copper].

14. (Amended) A process according to claim 10 [any one of claims 10 to 13], wherein the orthohydroxyaryl oxime or orthohydroxyarylketoime is selected from the class of compounds represented by the Formula (1),



Formula (1)

wherein

R¹ is hydrogen or an optionally substituted hydrocarbyl group

R² is an optionally substituted ortho-hydroxyaryl group,

and salts thereof.

*Amendment*U.S. Serial No. 09/857,766

Page 13

16. (Amended) A process according to claim 10 [any one of claims 10 to 15], wherein the orthohydroxyarylketoxime is a 5-(C₉ to C₁₄ alkyl)-2-hydroxyacetophenone oxime[, preferably 5-nonyl-2-hydroxy-acetophenone oxime].

17. (Amended) A process according to claim 10 [any one of claims 10 to 16], wherein the orthohydroxyarylaldoxime is a 5-(C₉ to C₁₄ alkyl)-2-hydroxybenzaldoxime[, preferably 5-nonyl-2-hydroxy-benzaldoxime].

18. (Amended) A process according to any one of claims 10, 12, 13, 14, 16 or 17, [10 to 17] wherein the ester substituted with a hydroxy group comprises a highly-branched hydroxy-ester comprising from 9 to 25 carbon atoms.

19. (Amended) A process according to any one of claims 10, 12, 13, 14, 16 or 17, [10 to 18] wherein the hydroxy functionality of the ester substituted with a hydroxy group resides on R⁸, and where R⁸ is a branched aliphatic group.

20. (Amended) A process according to any one of claims 10, 12, 13, 14, 16 or 17, [10 to 19] wherein the ester substituted with a hydroxy group is 2,2,4-trimethyl-1,3-pentanediol mono-isobutyrate or 2,2,4-trimethyl-1,3-pentanediol monobenzoate.

End of Appendix